Environmental Review Team Report

Geer Property Zone Change

Griswold, Connecticut

R C & D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report

Geer Property Zone Change

Griswold, Connecticut

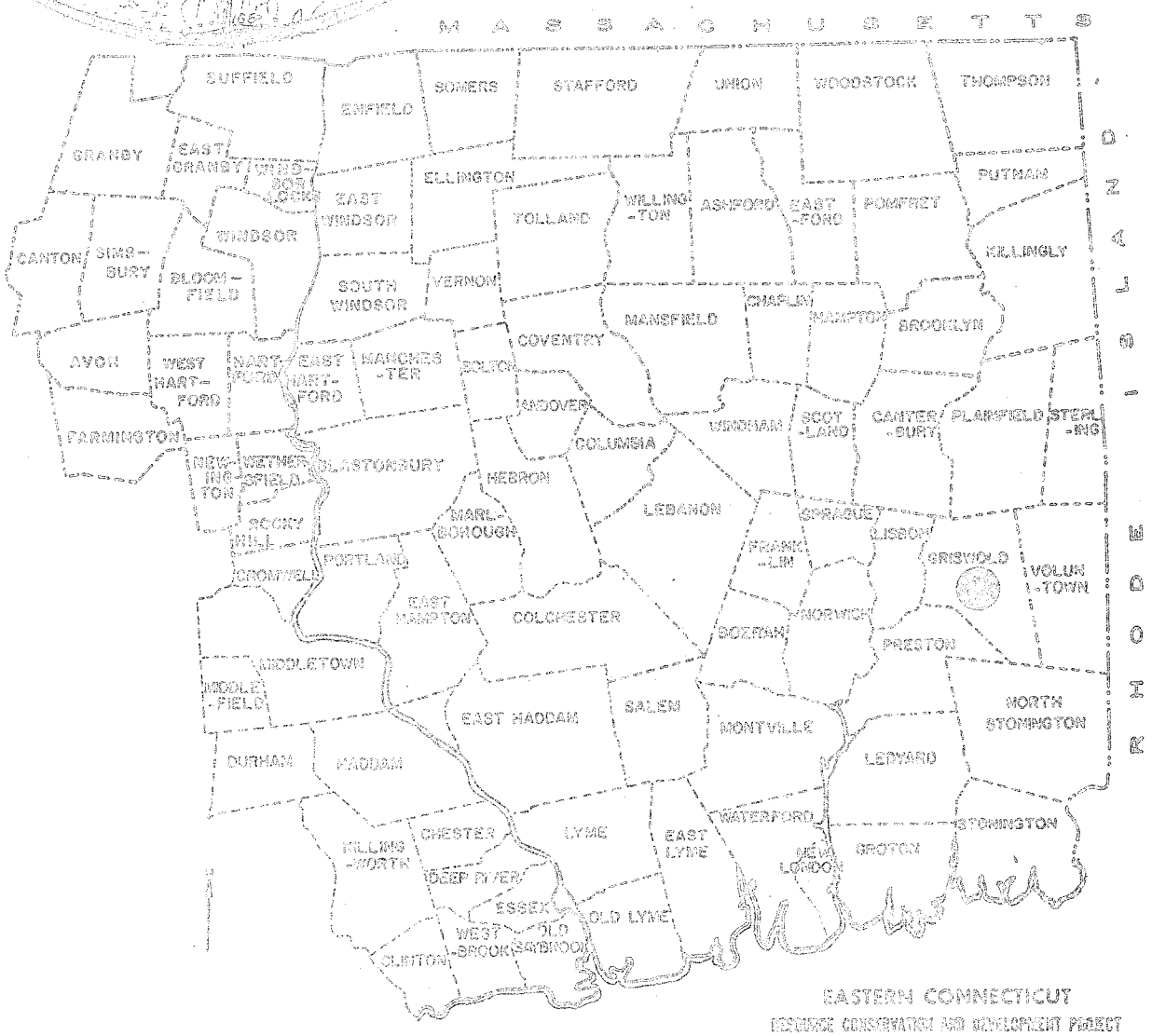
June 1983

Eastern Connecticut Resource Conservation & Development Area

Environmental Review Team
PO Box 198
Brooklyn, Connecticut 06234

Location of Study Site

GEER PROPERTY ZONE CHANGE
GRISWOLD, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
GEER ZONE CHANGE
GRISWOLD, CONNECTICUT

This report is an outgrowth of a request from the Griswold Planning and Zoning Commission to the New London County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Committee for their consideration and approval as a project measure. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist of the United States Department of Agriculture (USDA), Soil Conservation Service (SCS). Reproductions of the soil survey map as well as a topographic map of the site were distributed to all ERT participants prior to their field review of the site.

The ERT that field checked the site consisted of the following personnel: Mike Schaefer, Soil Conservationist, Soil Conservation Service (SCS); Bill Warzecha, Geologist, Department of Environmental Protection (DEP); Pete Merrill, Forester, DEP; Charles Storrow, Regional Planner, Southeastern Connecticut Regional Planning Agency; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Tuesday, May 10, 1983. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggest considerations that should be of concern to the developer and the Town of Griswold. The results of this Team action are oriented toward the development of a better environmental quality and the long-term economics of the land use.

The Eastern Connecticut RC&D Project Committee hopes you will find this report of value and assistance in making your decisions on this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, P.O. Box 198, Brooklyn, Connecticut 06234, 774-1253.


Topography
Site Boundary
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660'
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INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for a proposed zone change in the Town of Griswold. The study site is approximately 72 acres in size and is located on the northern side of Lily Pond Road. The property is presently in the private ownership of H. David Geer. Roland Harris Associates have prepared preliminary soils maps and a boundary survey for the property.

Mr. Geer is requesting a zone change for this site from R-60 (rural residential) to R-40 (medium density residential). Given site development limitations, the Team Planner has estimated an increase of 16 house lots if the property was to be rezoned. No public water or sewer service is available to the site, so on-site septic systems and wells will be necessary. Lily Pond Road provides vehicular access to the site. At this time, Lily Pond Road is essentially a dead-end street as the bridge over the railroad which connects Lily Pond Road with Route 12 is not passable. Written communication with the Connecticut Department of Transportation indicates that this bridge is not scheduled to be repaired until the funding period 1985-92.

The property is currently divided into two sections; that section being mined for gravel and that section being used for the Geer Tree Farm. A wetland and associated watercourse run through the central section of the property and along the southern boundary.

The Team is concerned with the effect of this zone change and potential subsequent residential development on the natural resource base of this site. Although severe limitations to development may be overcome with appropriate engineering techniques, these measures can become costly, making a project financially unfeasible for a developer. The following sections of this report discuss the Team's findings in detail, but in general, it would appear that a change in zone to moderate density residential would be feasible. It is suggested, however, that the ERT be asked to review any subsequent development plan for this parcel.

ENVIRONMENTAL ASSESSMENT

TOPOGRAPHY

The site is located in the northeast section of town, approximately one mile south of the Griswold-Plainfield town line. It is irregularly shaped and consists primarily of woodlands, open fields, and wetlands. Topography of the site varies from gently rolling terrain throughout the eastern section to a moderately to steeply sloped, elliptical shaped hill in the western section. At the present time, a sand and gravel mining operation is being conducted throughout the hill to the western section of the site. The site's maximum elevation (+ 160 feet above mean sea level) is reached at the top of this hill. The lowest elevation (± 120 feet above mean sea level) on the site is represented by the surface of the wetland in the middle section of the site. Elevations were taken from the Plainfield topographic quadrangle, published by the United States Geological Survey (USGS).

Surficial Geology

GEOLOGY

The greatest percentage of the site is located within the Plainfield topographic quadrangle; however, it is also encompassed in a small portion of the Jewett City topographic quadrangle. Both the bedrock geologic map by H. Roberta Dixon, 1965, and the surficial geologic map by B.D. Stone and A.D. Randall, 1978, of the Plainfield topographic quadrangle have been published by the U.S. Geological Survey. The surficial geologic map (by B.D. Stone 1978) for the Jewett City topographic quadrangle has also been published by the U.S. Geological Survey; however, the bedrock geologic map has not been published to date.

During the review, bedrock outcrops were observed in the northern portions of the site. Although not observed by the Team geologist, the bedrock geologic map (GQ-481) identifies an isolated outcrop in the southern section of the site. The type of rock unit comprising these outcrops as well as the underlying bedrock has been classified as the Lower member of the Quinebaug Formation. These rocks are gneisses, consisting of well-layered rocks of fine grained primary mineral groupings of epidote-biotite-quartz-andesine with various combinations of hornblende and microcline. Accessory minerals include garnet, allanite, sphine, zircon, apatite, and opaque minerals. Gneisses are rocks in which thin bands of platy, flaky, or elongate minerals alternate with the layers of more granular minerals.

With respect to a subdivision, bedrock underlying the site will probably have little influence except in terms of locating on-site septic systems and water quality and quantity of bedrock based wells. Extreme care should be exercized in locating septic systems in areas where bedrock is at or near the surface which, based on the bedrock geologic map and visual observation, appears to be restricted to northern portions of the site. The Public Health Code mandates that areas where bedrock is less than five feet below ground surface are areas of special concern which merit a particular investigation and special design.

The principal surficial material (the material which overlies solid bedrock on the site) is stratified drift. Well sorted, pebble-cobble sand and gravel are the principal components of stratified drift. These deposits were laid down by the meltwater streams that resulted from the wasting glacier ice. Thickness of the deposits range from + 40 feet throughout the western section of the site to ±10 feet throughout the eastern section.

The other type of sediment which is found along either side of Havey Brook in the middle section of the site and also in low lying areas in the eastern portion of the site is "swamp deposit." Swamp deposits consist of organic material (decayed plant material), sand, silt, and clay. Thickness of these deposits are probably no deeper than 5 feet.

HYDROLOGY

The site lies within two separate watersheds. A small, pie shaped area situated in the middle section of the site lies within the watershed of Havey Brook. Havey Brook, which flows north to south through a wetland area on the property, drains the land throughout the middle section of the site. The discharging point for this watershed is to a large wetlands south of the site. The remaining portions of the site lie within the watershed of Clayville Pond. Drainage from all parts of the site flow ultimately into Aspinook Pond. At the time of the review, the quality of water in Havey Brook appeared to be good.

Drainage Areas

Although no plan sufficient to allow the determination of the effects from storm sewering or waste water discharges has been prepared at this time, an estimate may be made of the runoff change likely to occur from land use modification alone by using Technical Release #55 prepared by the Soil Conservation Service. The Team analysed the effect of development on runoff under the existing R-60 zone and the proposed R-40 zone. Rainfall data were taken from the United States Geological Survey records. Runoff amounts were calculated for storms having average periods of recurrence of 10 years, 25 years, 50 years, and 100 years. Each storm would have a 24-hour duration.

TABLE I: STORMWATER RUNOFF INCREASES FROM UNDEVELOPED TO DEVELOPED CONDITIONS ON THE GEER PROPERTY

AVERAGE RECURRENCE INTERVAL OF STORM	10 yrs.	25 yrs.	50 yrs.	100 yrs.
Inches of rainfall in 24 hours	4.9:	5.5"	6.4"	7.0"
Inches/runoff under present conditions	.29"	.45"	.76"	1.0"
Inches/runoff under R-60 development	.95"	1.26"	1.78"	2.14"
% increase from present	228%	180%	134%	114%
Inches/runoff under R-40 development	1.05"	1.37"	1.9"	2.3"
% increase from present	262%	204%	150%	130%

Note: The flow rates listed above are only estimates based on broad assumptions. They should not be used as exact data for any engineering purposes.

As the table shows, significant increases in runoff may be expected from the site, following development under the present R-60 zone as well as under the proposed R-40 zone. The increases will be due largely to the removal of vegetation and the covering of pervious soils by impervious surfaces. This is especially the case since natural soils throughout the site are generally pervious. Therefore, it is recommended that the developer perpare a detailed stormwater management plan which also incorporates erosion/sedimentation measures for Town review.

SOILS

A detailed soils map of this site and detailed soils descriptions are included in the Appendix to this report, accompanied by a chart which indicates soil limitations for various urban uses. As the soil map is an enlargement from the original 1,320'/inch scale to 660'/inch, the soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types on the site. The soil limitation chart indicates the probable limitations of each of the soils for on-site sewage disposal, buildings with basements, streets and parking, and landscaping. However, limitations, even though severe, do not preclude the use of the land for development. If economics permit large expenditures for land development and the intended objective is consistent with the objectives of local and regional development, many soils and sites with difficult problems can be used. The soils map, with the publication, New London County Interim Soil Survey Report, can aid in the identification and interpretation of soils and their uses on this site. "Know Your Land: Natural Soil Groups for Connecticut" can also give insight to the development potentials of the soils and their relationship to the surficial geology of the site.

The soils on this property are mostly on outwash plains and stream terraces. A small area in the northeast portion of the property consists of upland soils of glacial till origin.

The soils are distributed as indicated by the detailed soil map. They are:

Aa - Adrian and Palms mucks

Ce - Carlisle muck
CbB - Canton and Charlton fine sandy loams, 3 to 8 percent slopes
CrC - Charlton-Hollis fine sandy loams, very rocky, 3 to 15 percent slopes

HkC - Hinckley gravelly sandy loam, 3 to 15 percent slopes

MyB - Merrimac sandy loam, 3 to 8 percent slopes

Sg - Sudbury sandy loam
SvA - Sutton fine sandy loam, 0 to 3 percent slopes
SvB - Sutton fine sandy loam, 3 to 8 percent slopes

Ub - Udorthents - Pits complex, gravelly

Wd - Walpole fine sandy loam

Adrian and Palms soils are very poorly drained soils in depressions along streams. These soils consist of well decomposed organic deposits 16 to 50 inches thick. The water table is at or near the surface most of the year. The available water capacity is high. These soils have moderately rapid permeability in the organic layers and moderate to moderately slow permeability in the sandy and loamy mineral substratum. Surface runoff is very slow on these soils.

Carlisle soils are very poorly drained organic soils in depressions along streams. These soils have properties similar to those of Adrian and Palms except the organic deposits are thicker than 50 inches.

Canton and Charlton soils are loamy well drained soils on hills and side slopes. These soils are gently sloping and the water table is commonly below six (6) feet. Permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability of the Charlton soils is moderate or moderately rapid throughout. These soils have a moderate available water capacity. Surface runoff is medium.

Charlton and Hollis soils are mapped together as a complex because they are difficult to separate on the landscape. The Charlton part of this map unit is as described above. Hollis soils are shallow to bedrock, loamy and somewhat excessively drained. They are generally on the higher part of the landscape and on the steep side slopes. Bedrock is within 20 inches of the surface and the available water capacity is low or very low. Permeability is moderate or moderately rapid throughout. Surface runoff is rapid.

Hinckley soils are excessively drained sandy and gravelly soils on terraces. These soils are gently sloping to sloping. The water table is commonly below six (6) feet. Permeability is rapid in the surface layer and subsoil and very rapid in the substratum. These soils have a low available water capacity. Surface runoff is slow.

Merrimac soils are somewhat excessively drained sandy and gravelly soils on terraces. These soils are nearly level and the water table is commonly below six (6) feet. Permeability is moderately rapid in the surface layer and upper part of the subsoil and rapid in the lower part of the subsoil and substratum. The available water capacity is moderate and surface runoff is slow.

Sudbury soils are moderately well drained, sandy and gravelly soils in slight depressions on terraces. These soils are nearly level to gently sloping and have a seasonal high water table at a depth of 20 inches from fall to spring. Permeability is moderately rapid in the surface layer and subsoil and rapid in the substratum. The available water capacity is moderate and surface runoff is slow.

Sutton soils are moderately well drained, loamy soils near the base of upland slopes and in slight depressions. These soils are nearly level to gently sloping with a seasonal high water table at a depth of 20 inches from fall to spring. Permeability is moderately rapid throughout the soil. The available water capacity is moderate and surface runoff is medium.

Udorthents-Pits complex, gravelly consists of an active sand and gravel pit with steep banks. The water table is below a depth of six (6) feet. Permeability of the soil materials is rapid or very rapid.

Walpole soils are poorly drained sandy and gravelly soils. They are in depressions and drainageways on terraces. These soils are nearly level and have a seasonal high water table near the surface from fall to spring. Permeability is moderately rapid in the surface layer and subsoil and rapid in the substratum. The available water capacity is moderate and surface runoff is slow.

A large portion of the ± 72 acre site, shown as Ud on the soils map, is being or will be mined for gravel. This area is comprised of ± 18 acres and is located on the western portion of the site. There is no final grading plan of the site and no soil borings have been made to locate the position of the groundwater table under the area being mined. Due to this lack of information, it is difficult to predict what impact the proposed zone change will have. Final grade has an effect on the rate and direction of runoff, depth to water table, limitations on urban development due to slope and the probability of any erosion on site causing off-site problems.

Erosion and Sediment Control

The potential for increased erosion/sediment problems exists with any increase in housing density (assuming single family units). The actual increase in erosion and sediment generated from the site could be minimized by carefully timing and implementing an erosion and sediment control plan.

Some of the measures which could be taken to alleviate erosion/sediment problems are:

1) Minimize site disturbance during construction.
2) Plan to have disturbed areas covered with temporary or permanent vegetative cover over the winter and spring.

3) Use diversions, haybale checkdams and whatever devices are necessary to keep sediment from reaching any wetlands, watercourses and water bodies.
4) Do not exceed 2:1 slopes on cut/fill banks.

Other measures can be applied as needed, depending on the actual development plan.

The road surface will not necessarily substantially increase with the proposed housing density. Therefore, the additional road sand during winter months should not be significant. In any case, catch basins should have adequate sump space to collect road sand and the basins should be cleaned regularly to avoid siltation of watercourses. Storm drainage systems should be provided with stable outlets with plunge pools/sediment basins installed if needed.

FOREST RESOURCES

The following vegetative map and code describe the forest resources found at the site on the date of the review. The wet area along the brook and the maple swamp is included in the designated wetland area and will not be affected by the proposed zone change.

The proposed use of Areas 1 and 1A for gravel excavation will effectively make building in this area an open field development. Vegetative buffers will have to be artificially established. Smaller lots will diminish the size of buffers that can be established.

In the area east of the brook, smaller lots would require clearing a larger percentage of the ground cover and therefore reducing the natural buffers between houses. The larger area of road and driveway surface would cause an increase in rainwater runoff, but the light soils would absorb this readily so there would be minimal effect on the vegetation.

Vegetation descriptions are as follows:

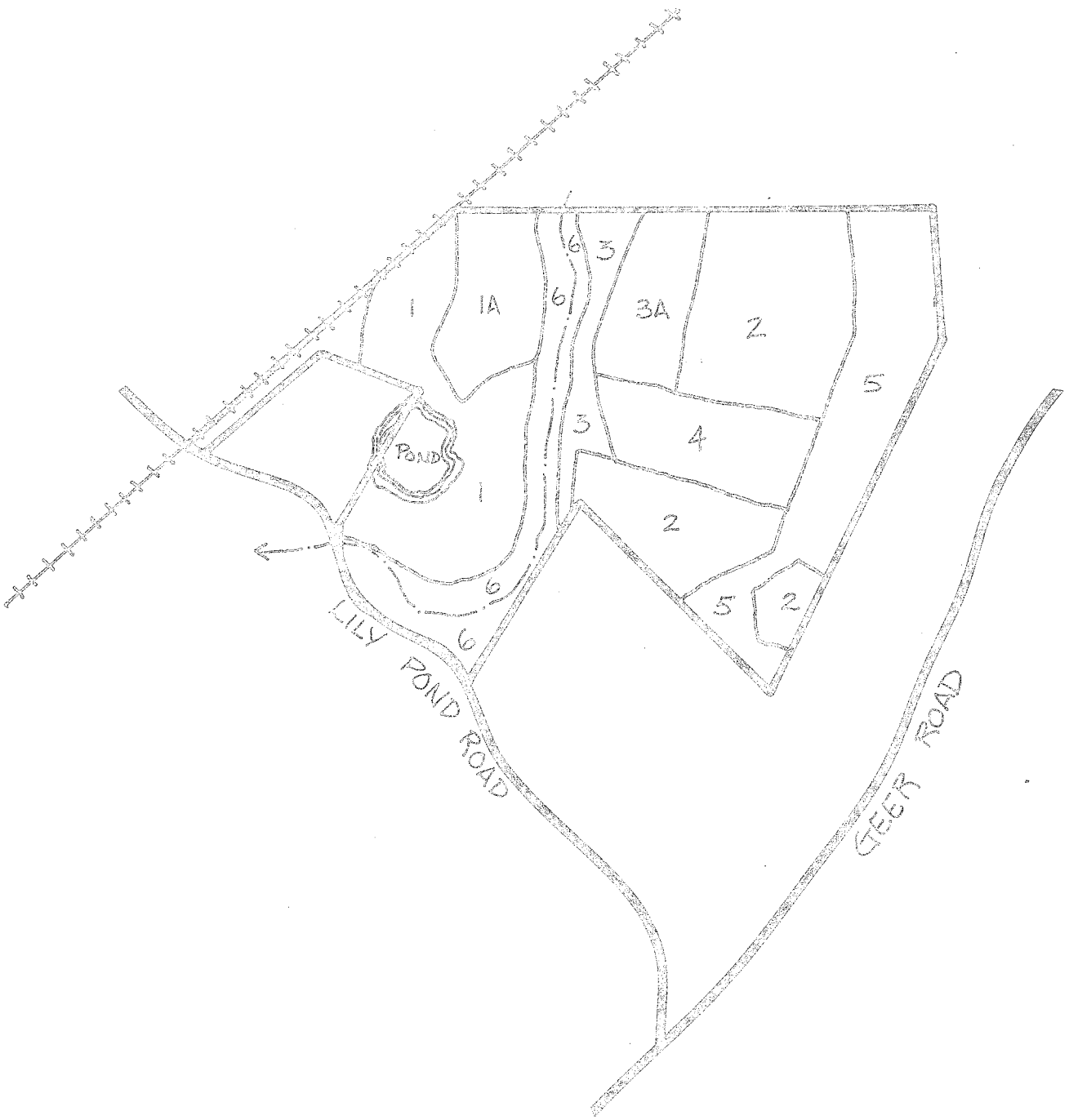
Area #1

The topsoil has been stripped from most of this area to expose the gravel. Some of the area is revegetating, starting with various sedges and grasses, goldenrod, sweet fern, black raspberry, smooth sumac, and prickly dewberry. In places where some organic soil was left, the primary woody species are returning. These include: black, pin, and choke cherries, red maple, sassafras, ironwood, and aspen - both trembling and large tooth.

Area #1A

This is the same ridge top, but it has not been stripped. All the larger trees were cut in preparation for stripping, so the cover is all seedling and stump sprouts, no more than 12' in height. In addition to the species mentioned in Area #1, there are white and scarlet oaks, white pine, red cedar, gray birch, multiflora, rose and tartarian honeysuckle.

Vegetation



SEE TEXT FOR VEGETATION TYPE DESCRIPTIONS

Area #2

These are open hay fields that are mowed annually and contain the usual grasses, red clover, and alfalfa.

Area #3

This is a white pine stand on the east bank of the brook, above the high water table area. Although most of the trees are white pine, there is also red maple, black and white oaks, hemlock, trembling aspen, ironwood, and flowering dogwood. Ground cover includes princess pine and common juniper.

Area #3A

The same except there are more hardwoods including: oaks (black and white), large tooth aspen, red cedar, red maple, and pignut hickory.

Area #4

This was an old field which was planted to white and Norway spruces. The white pine, red cedar, white ash, red maple, oaks (black and white), pignut hickory, cherry (pin and black), and gray birch have seeded in. The area still has the appearance of an old field as there are still open areas of grasses and sedges with common juniper, sweet fern, and spirea (narrowleaf and broadleaf).

Area #5

This is a minor drainage area that has old field type on the west to a predominately red maple stand of 25-30 years old. The older portion of the stand contains black oak, sassafras, cherry (pin and black), birches (black and gray), red cedar, and pines (pitch and white). In addition, the old field sections contain grasses and sedges, spirea (narrowleaf and broadleaf), high bush blueberry, and azaleas.

Area #6

This includes the low area along the so called "Geer Brook". Although this might be considered a red maple swamp, there are many other species including American elm and white pine along the fringes. Shrubs include silky dogwood, poison sumac, azaleas, high bush blueberry, spicebush, elderberry, various ferns, and skunk cabbage.

WATER SUPPLY

If a residential subdivision was developed on the site, the potable water supply would probably be provided by on-site wells as public water is not available in the general area. Based on information in the Connecticut Water Bulletin No. 8, this site lies within an area that has potential for high yielding wells. This is, in part, due to the presence of the stratified drift deposits underlying the site. Because of its sandy/gravelly nature, groundwater is transmitted relatively rapidly. However, where soils tend to be coarse, lacking a sandy matrix, there

can be rapid movement of sewage effluent through the soil without renovation before the waste water passes back into the natural groundwater table and/or eventually surfaces to ground level. To some extent, this problem is offset by increased natural dilution, since coarse grained soils are capable of absorbing more rainfall than other soils. Nevertheless, because most households only need yields of + 3 gpm (gallons per minute) and because there is greater risk of well contamination if the stratified drift on the site is tapped, it is suggested that on-site wells tap bedrock to minimize the potential for well contamination. The exact yield of any bedrock-based wells is a function of many geologic factors including the number and size of fractures encountered in the rock. As a result, it is extremely difficult to predict such yields. Nevertheless, eighty-five percent of the bedrock-based wells penetrating 100 feet of bedrock that are located in the Quinebaug River basin could supply at least 3 gpm (Source: Connecticut Water Resource Bulletin No. 8 Quinebaug River Basin).

It has generally been recognized that where both on site water supply and sewage disposal is to be utilized, minimum size lots of one acre are considered necessary in order to provide protection for ground and surface waters. The Public Health Code requires a minimum separating distance of 75 feet between a subsurface sewage disposal system and a water supply well and 50 feet from an open watercourse (any new subdivision plan). In general, wells should be located towards the high side of a lot and be in a direction away from normal groundwater movement and the expected path of possible pollutants. Drilled wells, properly installed and sealed into underlying bedrock will generally provide for greater sanitary protection of water quality. Most wells serving households have a withdrawal rate considerably under 10 gallons per minute. This would tend to result in a relatively shallow drawdown particularly in aquifers where soils are quite permeable. Soils having this characteristic also tend to have a rapid recharge rate. These combined factors can result in slower movement of bacteria from the leaching system towards the well allowing for the natural die-off and removal of such organisms.

In general wells should be located on a relatively high point on the property, in a direction which would be away from the normally expected flow of contaminants such as effluent from sewage systems, road salt from the maintenance of roads during winter months, etc. and protected from surface contamination. In some situations where it may not be feasible or possible to locate a well at a relatively high point on the property, the chance for possible well contamination can be minimized by the following recommendations: 1) increase the separating distance between the well and sewage system, 2) off set the well site from the subsurface leaching area, 3) utilize drilled wells tapping bedrock to minimize the potential for well contamination, 4) increase the overall length of well casing with a tight seal into underlying bedrock.

In lieu of a considerable number of individual on site wells the area, due to the nature of the overlying soils and water present, also appears to have good potential for the development of a community (public) water supply. Because a well(s) for this type of a system generally has a high yield a greater minimum separating distance (150 to 200 ft.) is required from any sewage disposal system or other potential forms of pollution. Such public water supplies are regulated by the Public Water Supplies Section of the State Department of Health Services.

In addition, at the present time, it should be noted that the Public Health Code addresses two conditions which may also have considerable bearing on the

possible location or placement of wells. This so called "area of special concern" is where soils are highly permeable having a minimum percolation rate faster than 1 inch a minute. Because such soils tend to have less filtration and renovation ability it is necessary to double the normally required minimum separating distance between a well and subsurface sewage disposal system. Also the bottom area of a leaching system must not be less than 10 feet above ledge rock or be 500 feet from any well.

Although there has been no actual on site soil testing, visual observations and soil mapping data does indicate some extensive areas of moderately and well drained soils. Therefore, on site test findings would seem to be a critical part of evaluating for the direction and manner in which to pursue water supply for development purposes, and also assistance in determining whether a reduction in lot size while increasing overall density is compatible.

The site lies within an area where relatively high concentrations of iron and/or manganese are common in the groundwater. This problem can normally be handled by suitable methods of filtration. However, aside from these potential difficulties, the quality of the water supply should generally be good. (Source: Connecticut Resource Bulletin No. 8 Quinebaug River Basin)

WASTE DISPOSAL

Buildings and dwellings that are located beyond the Borough of Jewett City within the Town of Griswold are served by on site subsurface sewage disposal systems.

Based on visual observations and soil mapping data, a considerable portion of the property in question, excluding wetlands, appears to be well drained and favorable for sewage disposal purposes. Perhaps the main concern would be whether the majority of lots would have leaching systems constructed in very permeable soils. In cases where the soils are coarse grained, affording very rapid percolation, the degree to which leaching system effluent receives filtration and renovation may not be sufficient in order to prevent an adverse effect on ground and surface waters. This is particularly so where the groundwater is high or underlying bedrock is shallow and many subsurface sewage disposal systems are built on small lots in close proximity to one another.

In general, however, experience has shown that any significant level of pollution is unlikely to occur where the volume of sewage discharges is by single family residences to one acre lots having slight or moderate limitations. Elevating conventional leaching systems as much as possible above the groundwater will also assist in reducing the pollution where the soil is highly permeable. Also increasing the horizontal separating distance from a water body or a well would provide additional protection by increasing travel time and allow for more dilution, particularly of nitrates. Of course, if hazardous chemicals are discharged along with the usual domestic sewage, detrimental effects may result.

Proper evaluation of the property would involve the digging of a sufficient number of observation pits and running a number of percolation tests to better gauge how permeable the soils actually are. In addition, for future development (subdivision) purposes, the existing sand and gravel removal operations should be looked at as to a possible time frame for continued use, depth or amount of

remaining material to be removed, and what the final grades and contours of this area of the property are likely to be.

Some variation for a possible zone change would appear to be feasible.

PLANNING CONCERNS

The Geer property which is the subject of this report contains about 73 acres. This figure was established by marking the boundaries of the property on an aerial photograph and measuring the area with a planimeter. It is, therefore, sufficiently accurate for preliminary study purposes. It was also established, by reference to the soils map, that about 28% of the property, or twenty acres, consists of wetlands, leaving about fifty-three acres available for development. If 15% of this developable land, or eight acres, is assumed to be taken up with roads, then forty-five acres would be left for house lots. Under the present R-60 zoning, this would yield about thirty-three lots, and under the proposed R-40 zoning, about forty-nine lots.

TRAFFIC IMPACT

The report entitled, Trip Generation Study of Various Land Uses, by Israel Zevin, published by the Connecticut Department of Transportation, gives the figure of 10.6 trips per day per house as the average traffic generated in residential subdivisions. Therefore, we can estimate the number of trips under R-60 zoning to be approximately 350, and under R-40 zoning, to be approximately 520.

At the present time, the only access to the property is from Geer Road, via Lilly Pond Road. This is because the bridge over the Providence and Worcester Railroad tracks on Lilly Pond Road is closed. Therefore, that road is really a dead-end road. It is a comparatively narrow, two-lane thoroughfare. The distance along Lilly Pond Road from Geer Road to the access to the Geer property is about 3,000 feet. Thus, Lilly Pond Road will really form a cul-de-sac approximately 3,000 feet long. In this connection, it is worthy of note that the Griswold Subdivision Regulations do not currently permit a cul-de-sac more than 600 feet long and serving more than thirty houses. There is a possiblity that the 600-foot dimension may be increased to 1,200 feet in the near future, but Lilly Pond Road, at 3,000 feet, is much longer than any road permitted in a subdivision.

The reason for not permitting extremely long cul-de-sacs on dead-end roads in subdivisions is so that there will be more than one access or egress route from the houses in the event of an emergency, such as a fire, or blockage by fallen utility lines. It is true that the Lilly Pond Road situation already exists, and that a developer of a future subdivision on the Geer property might be able to avoid a dead-end road system within the subdivision itself through the use of a loop road. However, the Griswold Planning and Zoning Commission must evaluate whether they want to permit a potentially difficult situation to arise on Lilly Pond Road, especially if the number of houses which would be permitted under R-40 zoning on the Geer property, as described above, were to be built and permitted to generate the estimated traffic.

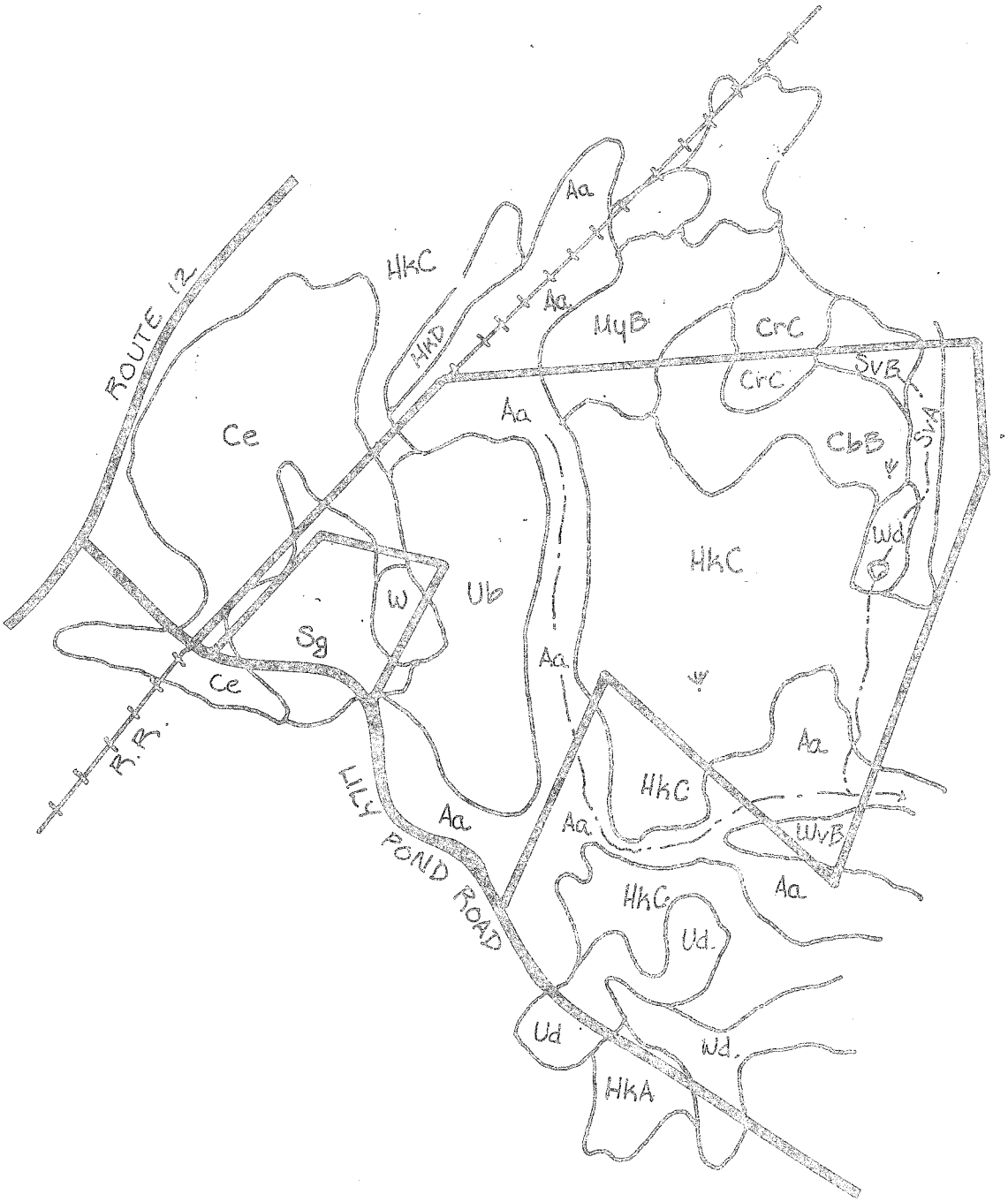
This problem would be solved if it were possible to reopen the bridge over the railroad track, or alternatively, to provide another access road to Geer Road.

SOLAR ACCESS

Even if the Geer property were to be subdivided into 40,000 square-foot lots, it should not be difficult to provide full south-wall solar access for all lots in the subdivision. It is only when lot size is reduced to 20,000 square feet or smaller that such access becomes difficult to provide. Nevertheless, solar access should be considered in the layout of lots and siting of houses. On the Geer property, houses should be so located that they will not be shaded by large trees, even though it is desirable to minimize the cutting of such trees. Trees can also be used to protect houses from cold north winter winds. In addition, wherever possible, it is desirable to locate septic systems to the south of houses, thereby taking advantage of the leaching field area for solar access.

Appendix

Soils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Aa
Aa
MyB
CrC
CrC
SvB
SvA
Ce
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CbB
Wd
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W
Ub
Sg
Ce
Aa
R.R.
LILY POND ROAD
Aa
HkC
Aa
WyB
Aa
HkC
Ud
Ud
Wd
HkA

H. DAVID GEER
GRISWOLD ZONE CHANGE PROPOSAL

Principal Limitations and Ratings of Soils for: Residential Development

SOIL MAP SYMBOL AND SOIL NAME	DWELLINGS WITHOUT BASEMENTS	DWELLINGS WITH BASEMENTS	LAWNS AND LANDSCAPING	SEPTIC TANK ABSORPTION FIELDS	LOCAL ROADS AND STREETS
*Aa - Adrian	Severe-ponding, low strength	Severe-ponding	Severe-excess humus, ponding	Severe-ponding poor filter	Severe-ponding, low strength, frost action
#CbB -					
Canton	Slight	Slight	Slight	Severe-poor filter	Slight
Charlton	Slight	Slight	Slight	Slight	Slight
*Ce - Carlisle	Severe-ponding, low strength	Severe-ponding, low strength	Severe-ponding, excess humus	Severe-ponding, percs slowly	Severe-ponding, frost action
CrC -					
Charlton	Moderate-slope	Moderate-slope	Moderate-large stone, slope	Moderate-slope	Moderate-slope
Hollis	Severe-depth to rock	Severe-depth to rock	Severe-thin layer	Severe-depth to rock	Severe-depth to rock
#MyB - Merrimac	Slight	Slight	Slight	Severe-poor filter	Slight
HkC - Hinckley	Moderate-slope	Moderate-slope	Severe-small stones, droughty	Severe-poor filter	Moderate-slope
#Sg - Sudbury	Moderate-Wetness	Severe-wetness	Slight	Severe-wetness, poor filter	Moderate-wetness, frost action
#SvA, SvB - Sutton	Moderate-wetness	Severe-wetness	Moderate-wetness	Severe-wetness	Severe-frost action
*Wd - Walpole	Severe-wetness	Severe-wetness	Severe-wetness	Severe-wetness, poor filter	Severe-wetness, frost action

Ub - Udorthents - Pits complex, gravelly - Requires on-site investigation (see narrative)

*Designated wetland soil by Public Act 155
#Prime farmland soil

SOIL INTERPRETATIONS FOR URBAN USES

The ratings of the soils for elements of community and recreational development uses consist of three degrees of "limitations":slight or no limitations; moderate limitations; and severe limitations. In the interpretive scheme various physical properties are weighed before judging their relative severity of limitations.

The user is cautioned that the suitability ratings, degree of limitations and other interpretations are based on the typical soil in each mapping unit. At any given point the actual conditions may differ from the information presented here because of the inclusion of other soils which were impractical to map separately at the scale of mapping used. On site investigations are suggested where the proposed soil use involves heavy loads, deep excavations, or high cost. Limitations, even though severe, do not always preclude the use of land for development. If economics permit greater expenditures for land development and the intended land use is consistant with the objectives of local or regional development, many soils and sites with difficult problems can be used.

Slight Limitations

Areas rated as slight have relatively few limitations in terms of soil suitability for a particular use. The degree of suitability is such that time or cost would be needed to overcome relatively minor soil limitations.

Moderate Limitations

In areas rated moderate, it is relatively more difficult and more costly to correct the natural limitations of the soil for certain uses than for soils rated as having slight limitations.

Severe Limitations

Areas designated as having severe limitations would require more extensive and more costly measures than soils rated with moderate limitations in order to overcome natural soil limitations. The soil may have more than one limiting characteristic causing it to be rated severe.

About the Team

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state, and regional agencies. Specialists on the Team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, archeologists, recreation specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area.

The Team is available as a public service at no cost to Connecticut towns.

PURPOSE OF THE TEAM

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activitis. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, sanitary landfills, commercial and industrial developments, sand and gravel operations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

REQUESTING A REVIEW

Environmental reviews may be requested by the chief elected officials of a municipality or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the Chairman of your local Soil and Water Conservation District. This request letter should include a summary of the proposed project, a location map of the project site, written permission from the landowner allowing the Team to enter the property for purposes of review, and a statement identifying the specific areas of concern the Team should address. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information regarding the Environmental Review Team, please contact Jeanne Shelburn (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.